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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/743,904	12/24/2003	Satoru Komatsu	107355-00101	9167

7590 04/06/2005

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EXAMINER	
AL NAZER, LEITH A	

ART UNIT	PAPER NUMBER
2821	

DATE MAILED: 04/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/743,904	KOMATSU ET AL.	
	Examiner	Art Unit	
	Leith A. Al-Nazer	2821	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 April 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *13 April 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *24 December 2003*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 8 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 8 recites "the radiation element". It is unclear whether this term refers to the first radiation element, the second radiation element, or both radiation elements.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,300,936 to Izadian in view of U.S. Patent No. 6,097,345 to Walton.

With respect to claim 1, Izadian teaches an antenna comprising a grounding conductor (28) provided on a surface of a first dielectric substrate (34); and an antenna element including a first radiation element (24); and a second radiation element (22) provided on the first radiation element so as to protrude from a surface of the first dielectric substrate and extend in a vertical direction (figure 1). Claim 1 requires the first radiation element be provided on the same surface of the first dielectric substrate that the grounding conductor is mounted on. Such a configuration is well-known in the art, as is evidenced by Walton (figure 2). At the time of the invention, it would have been obvious to one having ordinary skill in the art to mount the first radiation element and the grounding conductor of Izadian on the same surface of the substrate. The motivation for doing so would have been to create a more compact structure.

6. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application Publication No. 2004/0056811 to Pakray et al. in view of U.S. Patent No. 6,097,345 to Walton.

With respect to claim 1, Pakray teaches an antenna comprising a grounding conductor (30) provided on a surface of a first dielectric substrate (14 and 20); and an antenna element including a first radiation element (16); and a second radiation element

(18) provided on the first radiation element so as to protrude from a surface of the first dielectric substrate and extend in a vertical direction (figure 2). Claim 1 requires the first radiation element be provided on the same surface of the first dielectric substrate that the grounding conductor is mounted on. Such a configuration is well-known in the art, as is evidenced by Walton (figure 2). At the time of the invention, it would have been obvious to one having ordinary skill in the art to mount the first radiation element and the grounding conductor of Pakray on the same surface of the substrate. The motivation for doing so would have been to create a more compact structure.

7. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,300,936 to Izadian in view of U.S. Patent No. 6,097,345 to Walton as applied to claim 1 above, and further in view of U.S. Patent No. 3,845,489 to Sauer et al. or Japanese Patent Document No. 09-181525 to Seshimo et al.

Claim 2 requires a pair of third radiating elements be disposed on an end portion of the second radiating element in a direction that the second radiation element extends, the pair of third radiation elements branching in horizontal and different directions from each other so that the second and third radiation elements of the antenna element form a T-shape. Such a configuration is well-known in the art, as is evidenced by Sauer (figure 1) and Seshimo (figure 1). At the time of the invention, it would have been obvious to one having ordinary skill in the art to utilize second and third radiation elements forming a T-shape in the system of Izadian. The motivation for

doing so would have been to provide a radiating element with a specific shape in order to achieve a desired radiation pattern.

8. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application Publication No. 2004/0056811 to Pakray et al. in view of U.S. Patent No. 6,097,345 to Walton as applied to claim 1 above, and further in view of U.S. Patent No. 3,845,489 to Sauer et al. or Japanese Patent Document No. 09-181525 to Seshimo et al.

Claim 2 requires a pair of third radiating elements being disposed on an end portion of the second radiating element in a direction that the second radiation element extends, the pair of third radiation elements branching in horizontal and different directions from each other so that the second and third radiation elements of the antenna element form a T-shape. Such a configuration is well-known in the art, as is evidenced by Sauer (figure 1) and Seshimo (figure 1). At the time of the invention, it would have been obvious to one having ordinary skill in the art to utilize second and third radiation elements forming a T-shape in the system of Pakray. The motivation for doing so would have been to provide a radiating element with a specific shape in order to achieve a desired radiation pattern.

9. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,300,936 to Izadian in view of U.S. Patent No. 6,097,345 to Walton as applied to claim 1 above, and further in view of U.S. Patent No. 6,795,023 to Chen.

Claim 3 requires the grounding conductor have a notched portion in an outer edge portion thereof. Such a configuration is well-known in the art, as is evidenced by Chen (column 2, lines 46-50). At the time of the invention, it would have been obvious to one having ordinary skill in the art to utilize a grounding conductor having a notched portion in the system of Izadian. The motivation for doing so would have been to realize impedance matching conditions, as is suggested by Chen (column 1, lines 41-48).

10. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application Publication No. 2004/0056811 to Pakray et al. in view of U.S. Patent No. 6,097,345 to Walton as applied to claim 1 above, and further in view of U.S. Patent No. 6,795,023 to Chen.

Claim 3 requires the grounding conductor have a notched portion in an outer edge portion thereof. Such a configuration is well-known in the art, as is evidenced by Chen (column 2, lines 46-50). At the time of the invention, it would have been obvious to one having ordinary skill in the art to utilize a grounding conductor having a notched portion in the system of Pakray. The motivation for doing so would have been to realize impedance matching conditions, as is suggested by Chen (column 1, lines 41-48).

11. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,300,936 to Izadian in view of U.S. Patent No. 6,097,345 to Walton, U.S. Patent No. 3,845,489 to Sauer et al., and Japanese Patent Document No. 09/181525 to

Seshimo et al., and as applied to claims 1 and 2 above, and further in view of U.S. Patent No. 6,795,023 to Chen.

Claim 4 requires the grounding conductor have a notched portion in an outer edge portion thereof. Such a configuration is well-known in the art, as is evidenced by Chen (column 2, lines 46-50). At the time of the invention, it would have been obvious to one having ordinary skill in the art to utilize a grounding conductor having a notched portion in the system of Izadian. The motivation for doing so would have been to realize impedance matching conditions, as is suggested by Chen (column 1, lines 41-48).

12. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application Publication No. 2004/0056811 to Pakray et al. in view of U.S. Patent No. 6,097,345 to Walton, U.S. Patent No. 3,845,489 to Sauer et al., and Japanese Patent Document No. 09/181525 to Seshimo et al., and as applied to claims 1 and 2 above, and further in view of U.S. Patent No. 6,795,023 to Chen.

Claim 4 requires the grounding conductor have a notched portion in an outer edge portion thereof. Such a configuration is well-known in the art, as is evidenced by Chen (column 2, lines 46-50). At the time of the invention, it would have been obvious to one having ordinary skill in the art to utilize a grounding conductor having a notched portion in the system of Pakray. The motivation for doing so would have been to realize impedance matching conditions, as is suggested by Chen (column 1, lines 41-48).

13. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,300,936 to Izadian in view of U.S. Patent No. 6,097,345 to Walton as applied to claim 1 above, and further in view of U.S. Patent No. 5,274,391 to Connolly.

Claim 5 requires the second radiation element of the antenna element be an I-shape. Such a configuration is well-known in the art, as is evidenced by Connolly (figure 1). At the time of the invention, it would have been obvious to one having ordinary skill in the art to utilize an I-shaped radiation element in the system of Izadian. The motivation for doing so would have been to provide a radiating element with a specific shape in order to achieve a desired radiation pattern.

14. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application Publication No. 2004/0056811 to Pakray et al. in view of U.S. Patent No. 6,097,345 to Walton as applied to claim 1 above, and further in view of U.S. Patent No. 5,274,391 to Connolly.

Claim 5 requires the second radiation element of the antenna element be an I-shape. Such a configuration is well-known in the art, as is evidenced by Connolly (figure 1). At the time of the invention, it would have been obvious to one having ordinary skill in the art to utilize an I-shaped radiation element in the system of Pakray. The motivation for doing so would have been to provide a radiating element with a specific shape in order to achieve a desired radiation pattern.

15. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,300,936 to Izadian in view of U.S. Patent No. 6,097,345 to Walton, as applied to claim 1 above, and further in view of U.S. Patent No. 5,936,587 to Gudilev et al.

Claim 6 requires a second dielectric substrate be disposed on the first dielectric substrate so as to be substantially perpendicular thereto, wherein the second radiation element is disposed on the second dielectric substrate. It is well-known in the art that radiation elements can be disposed on substrates, as is evidenced by Gudilev (figure 5). Therefore, at the time of the invention, it would have been obvious to one having ordinary skill in the art to dispose the second radiation element of Izadian on a dielectric substrate. The motivation for doing so would have been to provide structural support or to alter the radiation pattern of the radiation elements.

16. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application Publication No. 2004/0056811 to Pakray et al. in view of U.S. Patent No. 6,097,345 to Walton as applied to claim 1 above, and further in view of U.S. Patent No. 5,936,587 to Gudilev et al.

Claim 6 requires a second dielectric substrate be disposed on the first dielectric substrate so as to be substantially perpendicular thereto, wherein the second radiation element is disposed on the second dielectric substrate. It is well-known in the art that radiation elements can be disposed on substrates, as is evidenced by Gudilev (figure 5). Therefore, at the time of the invention, it would have been obvious to one having

ordinary skill in the art to dispose the second radiation element of Pakray on a dielectric substrate. The motivation for doing so would have been to provide structural support or to alter the radiation pattern of the radiation elements.

17. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,300,936 to Izadian in view of U.S. Patent No. 6,097,345 to Walton, U.S. Patent No. 3,845,489 to Sauer et al., and Japanese Patent Document No. 09-181525 to Seshimo et al. as applied to claims 1 and 2 above, and further in view of U.S. Patent No. 5,936,587 to Gudilev et al.

Claim 7 requires a second dielectric substrate be disposed on the first dielectric substrate so as to be substantially perpendicular thereto, wherein the second radiation element is disposed on the second dielectric substrate. It is well-known in the art that radiation elements can be disposed on substrates, as is evidenced by Gudilev (figure 5). Therefore, at the time of the invention, it would have been obvious to one having ordinary skill in the art to dispose the second radiation element of Izadian on a dielectric substrate. The motivation for doing so would have been to provide structural support or to alter the radiation pattern of the radiation elements.

18. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application Publication No. 2004/0056811 to Pakray et al. in view of U.S. Patent No. 6,097,345 to Walton, U.S. Patent No. 3,845,489 to Sauer et al., and Japanese

Patent Document No. 09-181525 to Seshimo et al. as applied to claims 1 and 2 above, and further in view of U.S. Patent No. 5,936,587 to Gudilev et al.

Claim 7 requires a second dielectric substrate be disposed on the first dielectric substrate so as to be substantially perpendicular thereto, wherein the second radiation element is disposed on the second dielectric substrate. It is well-known in the art that radiation elements can be disposed on substrates, as is evidenced by Gudilev (figure 5). Therefore, at the time of the invention, it would have been obvious to one having ordinary skill in the art to dispose the second radiation element of Pakray on a dielectric substrate. The motivation for doing so would have been to provide structural support or to alter the radiation pattern of the radiation elements.

19. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,300,936 to Izadian in view of U.S. Patent No. 6,097,345 to Walton as applied to claim 1 above, and further in view of U.S. Patent No. 5,872,546 to Ihara et al.

Claim 8 requires the radiation element be a semiconductor. It is well-known in the art that semiconductor materials can be used in radiation elements, as is evidenced by Ihara (column 4, lines 43-61). At the time of the invention, it would have been obvious to one having ordinary skill in the art to utilize semiconductor materials in the radiation elements of Izadian. The motivation for doing so would have been to provide a radiation element that has a desired radiation spectrum or a specific radiation pattern.

20. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application Publication No. 2004/0056811 to Pakray in view of U.S. Patent No. 6,097,345 to Walton as applied to claim 1 above, and further in view of U.S. Patent No. 5,872,546 to Ihara et al.

Claim 8 requires the radiation element be a semiconductor. It is well-known in the art that semiconductor materials can be used in radiation elements, as is evidenced by Ihara (column 4, lines 43-61). At the time of the invention, it would have been obvious to one having ordinary skill in the art to utilize semiconductor materials in the radiation elements of Pakray. The motivation for doing so would have been to provide a radiation element that has a desired radiation spectrum or a specific radiation pattern.

Communication Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leith A. Al-Nazer whose telephone number is 571-272-1938. The examiner can normally be reached on Monday-Friday, 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong can be reached on 571-272-1834. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

LA

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